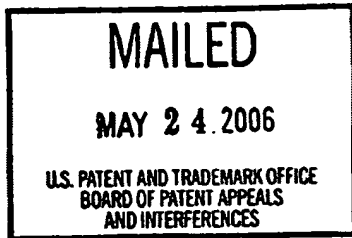


The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

*Ex parte* WILLIAM EARL RUSSELL II,  
DAVID JOSEPH KROPACZEK and GLEN ALAN WATFORD



Appeal No. 2006-1486  
Application No. 10/608,086

*Palabrica*

ON BRIEF

Before OWENS, LEVY, and NAPPI, *Administrative Patent Judges*  
OWENS, *Administrative Patent Judge*.

DECISION ON APPEAL

This appeal is from a rejection of claims 31-41, which are all of the pending claims.

THE INVENTION

The appellants claim an optimization process for a nuclear reactor. Claim 31 is illustrative:

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31. A method of determining independent control variable values for a nuclear reactor under operation, comprising:

receiving state-point data for the operating nuclear reactor, the state-point data including current values for independent control variables and for dependent performance variables of the operating nuclear reactor; and

performing an optimization process on one of a computer and computer network based on the received state-point data to generate one or more independent control variable values.

#### *THE REFERENCES*

Musick	4,080,251	Mar. 21, 1978
Takeuchi et al. (Takeuchi)	5,009,833	Apr. 23, 1991

#### *THE REJECTIONS*

The claims stand rejected as follows: claims 31-41 under 35 U.S.C. § 102(b) as anticipated by Takeuchi; claims 31-39 under 35 U.S.C. § 102(b) as anticipated by Musick; and claims 40 and 41 under 35 U.S.C. § 103 as obvious over Musick in view of Takeuchi.

#### *OPINION*

We reverse the aforementioned rejections and remand the application to the examiner. Regarding the rejections, we need to address only the sole independent claim, i.e., claim 31.<sup>1</sup>

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<sup>1</sup>The examiner does not rely upon Takeuchi for any disclosure that remedies the deficiency in Musick as to claim 31.

*Rejection over Takeuchi*

Takeuchi uses an expert system rule base to perform surveillance, diagnosis and prognosis of a nuclear power plant, thereby determining the probabilities of the existence of abnormal circumstances and predicting their effects (col. 1, lines 10-12).

The examiner defines "optimization" as "an act, process or methodology of making something (as a design, system, decision) as fully perfect, functional or effective as possible" (answer, page 3). The examiner argues that Takeuchi's "expert system/operator combination performs "optimization", by maintaining the plant within specified safety limits and avoiding costly accidents and recovery operations" (answer, page 7). Maintaining the plant within specified safety limits and avoiding costly accidents and recovery operations does not optimize the plant, i.e., make it as fully perfect, functional or effective as possible and, therefore, is not an optimization.

Because the examiner has not shown that Takeuchi performs an optimization process, the examiner has not established a prima facie case of anticipation over that reference.

*Rejection over Musick*

Musick predicts internal nuclear reactor conditions commensurate with maintaining the integrity of the fuel element cladding, thereby ensuring that the reactor is operated within safe operating limits (col. 1, lines 18-20; col. 5, lines 57-60).

The examiner argues that "Musick's control method achieves maximization of plant capacity and availability within acceptable fuel design limits under normal operation and anticipated operational occurrences (see col. 8, lines 24+)" (answer, page 3). The portion of Musick relied upon by the examiner discloses that "[i]n the art of reactor control the objectives to be achieved are the maximization of plant capacity and availability without violating the specified acceptable fuel design limits as a result of normal operation and anticipated operational occurrences" (col. 8, lines 24-28). Musick determines the design limits (col. 6, lines 15-18). The examiner has not established that Musick discloses, or would have fairly suggested, to one of ordinary skill the art, determining the optimum within those limits. As to claims 40 and 41, the examiner does not rely upon Takeuchi for any disclosure that

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remedies that deficiency in Musick. Consequently, the examiner has not carried the burden of establishing a prima facie case of anticipation over Musick or obviousness over Musick in view of Takeuchi.

*Remand*

As indicated above, the examiner's rejections are based upon misinterpretations of the references. We therefore remand the application to the examiner to determine whether prior art is available that discloses, or would have fairly suggested, to one of ordinary skill in the art, performing a computerized optimization process of a nuclear reactor to generate, from received state-point data, one or more independent control variable values.

*DECISION*

The rejections of claims 31-41 under 35 U.S.C. § 102(b) over Takeuchi, claims 31-39 under 35 U.S.C. § 102(b) over Musick, and claims 40 and 41 under 35 U.S.C. § 103 over Musick in view of Takeuchi, are reversed. The application is remanded to the examiner.

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This remand to the examiner pursuant to 37 CFR § 41.50(a)(1) (effective September 13, 2004, 69 Fed. Reg. 49960 (August 12, 2004), 1286 Off. Gaz. Pat. Office 21 (September 7, 2004)) is made for further consideration of a rejection. Accordingly, 37 CFR § 41.50(a)(2) applies if a supplemental examiner's answer is written in response to this remand by the Board.

*REVERSED and REMANDED*

  
TERRY J. OWENS  
Administrative Patent Judge )  
)  
)

  
STUART S. LEVY  
Administrative Patent Judge )  
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BOARD OF PATENT  
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INTERFERENCES

  
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Administrative Patent Judge )  
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